Patent claims:

1. Method for the thermal treatment of powder paints of any shade applied to substrates for the preparation of a coating on the substrates using IR radiation, characterized in that the powder paint applied to the substrate is irradiated with medium- and/or long-wave IR radiation, and that the powder paint contains additives with the characteristic of absorbing medium- and/or long-wave IR radiation, and that the powder paint which has been thermally treated with medium- and/or long-wave IR radiation is optionally subjected to further treatment with electron or UV radiation.

2. Method according to claim 1, characterized in that the powder paint is irradiated with a medium- and/or long-wave IR radiation with a wavelength range of 2 to 12 μm.

3. Method according to claim 1 or 2, characterized in that the medium- and/or long-wave IR radiation has a maximum radiation flux density at wavelengths of > 2.0 μm.

4. Method according to claim 3, characterized in that the maximum radiation flux density of the medium- and/or long-wave IR radiation is at wavelengths in the range of 2.0 to 9.0 μm, especially preferably between 2.0 and 6 μm.

5. Method according to one of claims 1 to 4, characterized in that the additive with the characteristic of absorbing medium- and/or long-wave IR radiation which is contained in the powder paint is antimony tin oxide and/or indium tin oxide.

6. Method according to one of claims 1 to 4, characterized in that the additive with the characteristic of absorbing medium- and/or long-wave IR radiation which is contained in the powder paint is zinc antimonate, vanadium oxide, tin oxide.

7. Method according to one of claims 1 to 4, characterized in that the additives with the characteristic of absorbing medium- and/or long-wave IR radiation which are contained in the powder paint are C nanotubes and/or C nanofibers.

8. Method according to claim 7, characterized in that the C nanotubes and/or C nanofibers are contained in a quantity in the range of 0.01 wt.% with respect to the total powder paint formulation.

9. Method according to one of claims 1 to 4, characterized in that the additives with the characteristic of absorbing medium- and/or long-wave IR radiation which are contained in the powder paint are rare-earth metals and/or oxides of the rare-earth metals or mixtures thereof.

10. Method according to claim 9, characterized in that ytterbium oxide and/or neodymium oxide are contained in the powder paint as additives with the characteristic of absorbing medium- and/or long-wave IR radiation.

11. Method according to claim 10, characterized in that ytterbium oxide and/or neodymium oxide are contained in the powder paint in a quantity of 2.5 wt.% each with respect to the total powder paint formulation.

12. Method according to one of claims 1 to 4, characterized in that the additives with the characteristic of absorbing medium- and/or long-wave IR radiation which are contained in the powder paint are organic substances with a component of hydroxyl groups which is at least 0.5 hydroxyl groups per C atom.

13. Method according to claim 12, characterized in that the organic substances are carbohydrates such as cellulose fibers or powder, starch, lactose.

14. Method according to claim 12, characterized in that the organic substances are polyalcohols such as pentaerythrite, di-pentaerythrite.

15. Method according to one of claims 1 to 14, characterized in that the substrate on which the applied powder paint is irradiated with medium- and/or long-wave IR radiation is three-dimensional.

16. Method according to one of claims 1 to 15, characterized in that the substrate on which the applied powder paint is irradiated with medium- and/or long-wave IR radiation is made of thermally insulating material with a thermal conductivity of between 0.05 and 5 W/mK.

17. Method according to one of claims 1 to 16, characterized in that the substrate on which the applied powder paint is irradiated with medium- and/or long-wave IR radiation is made of heat-sensitive material.